

We claim:

- Sub A> 1. A corrugated pipe connection joint structure for joining two sections of corrugated pipe comprising:
- 5 opposing bell-formed ends,  
a connector insert defining opposing ends and a push-ring;  
at least one gasket positioned on at least one of said opposing ends of said connector insert;  
wherein said opposing ends of said connector insert are positioned in said bell-formed ends, with said corresponding at least one gasket forming a seal therebetween.
- 10 Sub C> 2. The corrugated pipe connection joint structure of claim 1, wherein said opposing ends of said connector insert are substantially equal in length to the length of said opposing bell-formed ends.
- 15 3. The corrugated pipe connection joint structure of claim 1, wherein said connector insert further comprises:  
at least one flange having a diameter  $D_s$  proximate to said at least one gasket.
- 20 4. The corrugated pipe connection joint structure of claim 1, wherein said push-ring has a thickness of at least 0.25 inches.
5. The corrugated pipe connection joint structure of claim 1,  
25 further comprising at least one gasket positioned on each of said opposing ends of said connector insert.
6. The corrugated pipe connection joint structure of claim 1,  
wherein said seal is a watertight seal.
- 30

7. The corrugated pipe connection joint structure of claim 1,  
wherein said two sections of corrugated pipe have an outer diameter of  $D_y$  and  
an inner diameter of  $D_i$  and said opposing bell-formed ends have an outer  
diameter of  $D_o$  and an inner diameter of  $D_b$ .

35

8. The corrugated pipe connection joint structure of claim 7,  
wherein said push-ring of said connector insert has an outer diameter  
substantially equal to  $D_o$ .

40

9. The corrugated pipe connection joint structure of claim 7,  
wherein said at least one gasket has an outer diameter greater than  $D_b$ .

Sub A-4> 10. A corrugated pipe connector insert comprising:

a pair of opposing ends;

45

at least one gasket positioned on at least one of said opposing ends  
having an outer diameter greater than said outer diameter of said opposing  
ends; and

a push-ring disposed between said opposing ends having an outer  
diameter substantially equal to an outer diameter of said bell formed ends.

50

11. The corrugated pipe connector insert of claim 10, wherein said  
push-ring has a thickness of at least 0.25 inches.

12. The corrugated pipe connector insert of claim 10, further  
55 comprising:

at least one flange having a diameter  $D_s$  proximate to said at least one  
gasket.

13. The corrugated pipe connector insert of claim 10, further  
60 comprising at least one gasket positioned on each of said opposing ends of  
said connector insert.

Sub 457 14. The corrugated pipe connector insert of claim 11, wherein said  
push-ring has a diameter of no more than approximately one inch greater than  
65 D<sub>s</sub>.

15. The corrugated pipe connector insert of claim 13, further  
comprising at least one channel formed between adjacent flanges, said at least  
one gasket being positioned in at least one channel.

70 16. The corrugated pipe connector insert of claim 10, further  
comprising at least one groove formed on said insert, said at least one gasket  
being positioned in said at least one groove.

Sub 457 17. A method for joining two corrugated pipe sections comprising  
the steps of:

75 bell-forming at least one end of a first corrugated pipe section and at  
least one end of a second corrugated pipe section;

reducing an amount of corrugations at said bell-formed ends of said  
first and second corrugated pipe sections;

80 inserting a connector insert having a first end and a second end adapted  
to fit within said first and second bell-formed ends of said corrugated pipe  
sections into said first bell-formed end of said corrugated pipe section; and

inserting said second bell-formed corrugated pipe section over said  
second end of said connector insert.

85 18. The method for joining two corrugated pipe sections of claim 15,  
wherein said reducing step further comprises reducing said corrugations in  
height.

90 19. The method for joining two corrugated pipe sections of claim 15,  
wherein said bell-forming step further comprises heating said at least one end  
of said first and said second ends of corrugated pipe section and molding said  
first and second ends of corrugated pipe section.